ITRM Policy PLA 139-01
Effective Date: 2-9-2005

COMMONWEALTH OF VIRGINIA

Information Technology Resource Management Policy

PLATFORM ARCHITECTURE

Virginia Information Technologies Agency (VITA)

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Preface

Publication Designation

ITRM Policy PLA 140-01: Platform Architecture

Subject

Platform architecture policy requirements

Effective Date

The effective date is February 9, 2005, the date of approval by the Information Technology Investment Board (ITIB).

Supersedes

None

Scheduled Review

Annually

Authority

Code of Virginia, §2.2-2007 (Powers of the CIO)

Code of Virginia, § 2.2-2010 (Additional powers of VITA)

Code of Virginia, §2.2-2458 (Powers and duties of the board [ITIB]

Scope

The requirements in this policy apply to all state executive branch agencies including institutions of higher education. Executive branch agencies are referred to as "agencies" in this document.

Purpose

To establish platform policy requirements, which govern the acquisition, use and management of personal computing, server and storage technologies by state executive branch agencies of the Commonwealth of Virginia

General Responsibilities

The Chief Information Officer of the Commonwealth (CIO)

Directs the formulation and promulgation of ITRM standards

The Virginia Information Technologies Agency (VITA)

Drafts ITRM policies

Updates ITRM policies

Uses requirements in the ITRM policies when establishing contracts, reviewing procurement requests, developing services and managing services

The Information Technology Investment Board

Approves ITRM policy requirements.

Executive Branch Agencies

Provide input during the development of requirements and the drafting of the standard

Provide input for the review and updating of standard

Comply with the requirements established in the policy

Use policy information in planning for the acquisition and modification of platforms

Apply for waivers to policy requirements when necessary (e.g., for controlling costs or qualifying for funding)

Related ITRM Policies, Standards, and Guidelines

ITRM Standard PLA 140-01, Platform Standard

ITRM Guideline PLA 141-01, Platform Guideline

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Overview

This document provides the Information Technology Resource Management (ITRM) policy for computing platforms[1] that are used by Commonwealth of Virginia (Commonwealth) executive branch agencies. The policy addresses the assumptions, rationale, strategies, and expectations for placing controls on the selection and use of platforms. The computing platforms addressed by this platform architecture policy include servers, personal computing devices and storage systems.

This policy emanates from the development of an Enterprise Architecture (EA) for the Commonwealth and also supports mandates of the 2003 General Assembly that centralized responsibilities for platforms and platform services for executive branch agencies. The purpose of these two efforts is support for the effective and efficient management of ITRM platform resources needed for addressing business requirements.

The Enterprise Technical Architecture is divided into eight domains or areas of technology. The platform domain is one of the eight technical domains. The eight domains are as follows:

Network

Platform

Database

Middleware

Application

Information

Systems Management

Security

The requirements provided in this policy are the result of Enterprise Architecture technical domain team deliberations regarding specific strategies that are expected to result in savings for agencies or the Commonwealth or improved functionality or services. Also, this policy provides mechanisms for ensuring that enterprise-level issues are considered along with agency business needs and costs when making platform-related decisions. Specifically, this policy addresses the goals, objectives, assumptions, strategies, and anticipated results of instituting platform controls for executive branch agencies.

Platform Architecture Goals

The goals of implementing platform controls are:

- to achieve greater efficiencies in executive branch acquisition and use of computing platforms to meet business needs

[1] In the electronic version of this document , the Glossary entries are hyper-linked to the first occurrence of the entry in the document text. In the printed version, a hyper-linked entry appears as an underlined word in the text.

- to ensure the availability of a full complement of tools for meeting business needs, security requirements, management requirements, and productivity requirements (including productivity software and hardware that increases productivity)

Platform Architecture Objectives

Because there are rapid changes in technology and periodic changes in business requirements, the platform architecture development procedures must enable a focus on relevant changes and provide an historic perspective as part of the decision basis for determining platform requirements for a particular point in time. The following objectives address how the platform architecture is to be shaped.

Ensure the Availability of an Architecture Knowledge Base

- Understand the past and present platform architecture in Commonwealth Executive Branch Agencies
- Understand the general business needs of the agencies
- Understand technology trends
- Understand industry and government practices

Use the Knowledge Base to Recommend VA Strategies

- Identify architecture change strategies that will promote greater efficiencies including service improvements and cost savings
- Provide an architectural roadmap for agencies including the Virginia Information Technologies Agency (VITA)
- Indicate how lawmakers, agencies, secretariats and service providers can cooperate to achieve improvements
- When appropriate, recommend platform controls and publish them as standards
    - Indicate what platforms and related technologies may be acquired (note whether technologies are obsolescent, transitional, strategic or emerging)
    - Indicated how platform efficiencies may be achieved
    - Indicate who should be involved in the process of achieving the efficiencies
    - Indicate how local governments and other branches of government might voluntarily profit from use of similar strategies
- Ensure a process for active consideration of new industry, economic, technology, social, and legal trends and their impact on established platform directions

Agency Strategies for Achieving Platform Efficiencies

There are several general strategies for controlling platform costs and improving technology value that Commonwealth executive branch agencies including VITA and higher education business units should adopt. As platforms age, agencies should consider the following alternatives:

- Moving applications and utilities (e.g., storage) to lower cost platforms (e.g., from file servers to a network attached storage system)
- Evaluating options beyond one manufacturer when one platform is replaced by another (e.g., if migrating applications, consider more than one "in-architecture" platform when evaluating alternatives)
- Achieving support cost efficiencies through examining the costs and benefits of consolidating multiple applications on one platform (e.g., supporting databases on a single midrange or high-end platform or a cluster of midrange or low-end servers
- Supporting fewer technologies across agencies to achieve support, training, management, and comprehensive solutions design efficiencies
- Having a well defined strategy for the acquisition and support of all widely used personal computing platforms including desktops, laptops, and personal digital assistants
- Developing technology migration strategies as part of agency information technology portfolios
- Having agency and central mechanisms for considering enterprise issues related to each major agency project or acquisition (e.g., the Agency Procurement Request (APR) review process)
- Identifying central services that can be provided without extensive business knowledge (e.g., a storage service)
- Ensuring that cost analyses compare valid alternatives and include costs of acquisition, development, training, operations and maintenance for the alternatives when agencies develop platform strategies for particular applications
- Actively promoting competition for each major platform procurement and avoiding sole source procurements
- Considering virtualization (creating virtual servers) as a consolidation technique (Virtualization can be an important transitional consolidation strategy. This technique allows the running of old and new operating systems in different partitions on the same server.)
- Scaling-out or horizontal consolidation can be an important platform consolidation strategy for certain applications
- Actively considering the strength and weaknesses of the current platform strategy when evaluating whether to continue in the same direction through sole source acquisitions or restricted requests for proposals (RFPs)
- Leveraging the value of Commonwealth business when procuring platform solutions for any new or reengineered system by requesting that the RFP

responders specifically note how their proposal will reduce lifecycle costs to obtain this business

- Encouraging the vendor of the "migrate to" platform to propose discounted migration costs in return for the long-term business that would be transferred to the vendor's company
- Centrally managing desktops, personal digital assistants (PDAs), and PDA telecommunications services
- Pursuing the cost-savings potential of multi-application and multi-agency storage solutions

Assumptions Underlying the Platform Architecture

The following assumptions underlie the decisions and recommendations of the platform architecture.

- For desktop and related personal computing solutions cost reductions for platform software, software maintenance, and software support offer the best opportunity for cost savings—not hardware (software is part of the platform solution for desktops and laptops in the Commonwealth's architecture)
- Over time, as midrange platforms become more capable, the Commonwealth will have fewer applications that require high-end platforms. Future continuation of high-end platforms should be based increasingly on their consolidation value.
    - The Commonwealth cannot justify high-end platform usage based on transactional processing needs
    - The Commonwealth requires high availability for selected applications but can achieve this in more than one way (on other than high-end platforms)
    - The Commonwealth requires high security for selected applications but can achieve this in more than one way (on other than high-end platforms)
    - The high-end platforms may have considerable value as consolidation platforms, but the midrange alternative should be considered if equally appropriate and more cost-effective
- Consolidation relies on management tools, workload tools, and partitioning capabilities that are available on high-end platforms and midrange platforms that are scaled-down versions of high-end platforms.
- The Commonwealth's choice of consolidation platforms will determine the high-end server strategy for the Commonwealth
- New outsourced applications (and turn-key systems) should be provided on platforms that are "in-architecture." This enables bringing the application in-house if outsourcing is terminated.
- Microsoft server solutions will become more dominant as management, workload, and partitioning capabilities of Windows operating systems improve
- Linux use will continue to grow and UNIX use will continue to diminish through 2015

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Expected Platform Architecture Results

Implementing the strategies noted above will drastically change the platform landscape in Virginia agencies. The future architecture will have the following characteristics.

- Servers
  - Fewer servers
  - Less variation in server operating systems
  - More shared server solutions
  - Fewer staff managing server solutions
  - Reduced costs
    - Reduced costs for server hardware and base software
    - Reduced support and maintenance costs
    - Reduced training costs
  - Fewer sole source acquisitions of platforms and related tools
- Personal Computing Devices
  - Greater central control of hardware and typical software
  - Greater uniformity in the quality of work tools across agencies
  - Ongoing studies of alternatives to improve competition benefits
  - Improved security
  - Improved and more uniform support
- Storage
  - More affordable central storage options
  - Improved network connections to enable remote storage solutions
  - Growing use of less expensive alternative connections between servers and the storage solutions used by them
- Costs
  - Lower costs per unit of platform services
  - Higher costs for out-of-architecture solutions
  - Lower costs for the end-to-end simplified solutions
  - Charge back schemes based on whether applications run on in- or out-of-architecture platforms
  - Charge back for desktops and laptops based on typical versus atypical needs
  - Charge back for PDAs and services based on in-architecture versus special devices and services

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Glossary

High-end Server – defined as servers with a greater than 16-processor scale-up limit and typically costing more than $250,000.

Midrange to Small Server - in this report, servers costing $50, 000 or less are typical midrange- to small-servers. These servers would usually have one to four processors, but could have as many as 8 or 16 processors. When the midrange computer is a scaled-down version of a high-end server, it may cost substantially more.

Personal Computing – devices and device components for desktop computers, notebooks and handheld computers including operating systems, hardware components, productivity software, and security software.

Platform Architecture - defines the personal and business computing hardware systems to be used by agencies. The platforms may include servers (e.g., high-end servers and midrange to small servers), storage systems, personal computing devices (desktops, notebooks, and hand-held computing devices), and other hardware (e.g., printers). In addition to platform hardware, the Platform Architecture addresses operating systems, configurations, network and device-to-device interfaces, and selected peripherals (e.g., floppy drives). In the instance of personal computing devices, the architecture also addresses base productivity software, security software, and utilities that are necessary to make the hardware useful to users. The architecture addresses decision criteria and best practices for the acquisition and deployment of platforms. The architecture also identifies management and remote access components, which are critical to platform use. Details regarding management components are addressed in the Systems Management Domain.

Platforms – in this document, personal computing devices, servers, and/or storage systems.

Productivity Software - software typically used by business professionals such as word processing, spreadsheets, presentation slides, web browsers, and plug ins. Also includes lesser-used software such as personal database software, flowcharting, project management.

Server – a computer that provides some service for other computers connected to it via a network.

Storage – computer storage is the holding of data in an electromagnetic form for access by a computer processor. Primary storage is data in random access memory (RAM) and other "built-in" devices. Secondary storage is data on hard disks, tapes, and other external devices.